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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,914	06/24/2003	Hong-Da Liu	03166-UPS	4334
33804	7590	06/27/2005	EXAMINER	
SUPREME PATENT SERVICES POST OFFICE BOX 2339 SARATOGA, CA 95070			TON, MINH TOAN T	
			ART UNIT	PAPER NUMBER
			2871	
DATE MAILED: 06/27/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/603,914

Applicant(s)

LIU, HONG-DA

Examiner

Toan Ton

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 06 March 2005.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.  
4a) Of the above claim(s) 5-18, 20, 24, 27, 38 and 39 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 21-23, 25, 26 and 28-37 is/are rejected.  
7) ☒ Claim(s) 19 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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***Election/Restriction***

1. An election without traverse of a species directing to a 2<sup>nd</sup> embodiment that corresponds to claims 1-4, 19, 21-23, 25-26 and 28-37 is acknowledged. Thus, claims 5-18, 20, 24, 27 and 38-39 are withdrawn from consideration.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 29 and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubo et al (US 6195140).

Kubo discloses a transfective LCD device comprising (see at least Figure 10): a layer of liquid crystal cell sandwiched between upper and lower plates, a lower plate being an active matrix plate (i.e., TFTs are formed as switching elements), a color filter layer 53 disposed on the upper plate, an ITO electrode layer disposed above the lower plate, a condenser 59 having diffraction or refraction condensing effect having an averaged equivalent focus, a reflective pixel region 50 and a transmissive pixel region 51 formed on the lower plate and on the condenser.

Kubo discloses the reflective pixel region formed on the transmissive pixel region, thus, the liquid crystal gap in the transparent area is greater than that in the reflective area.

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Kubo discloses the thickness of the liquid crystal layer in the transmissive pixel region being 7.5 um and the thickness of the liquid crystal layer in the reflective pixel region being 4.5 (see at least Example 5, difference is 3 um, within Applicant's claimed range).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 21-23, 25-26, 28, 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo as applied to claims 1-3, 29 and 33-35 above.

The use of an inner diffusion layer is common and known in the LCD art for achieving advantages such as light uniformity (yielding advantages such as high brightness). Therefore, it would have been obvious to one of ordinary skill in the art to employ an inner diffusion layer, as common and known in the LCD art for achieving advantages such as light uniformity (yielding advantages such as high brightness). Kubo discloses the reflective pixel region formed on the transmissive pixel region, thus, the liquid crystal gap in the transparent area is greater than that in the reflective area (see at least Figure 10).

Kubo discloses the electrode layer having an aperture (see at least Figure 13).

Kubo discloses the use of a color filter layer disposed on the upper plate, however, it is common and known that forming a color filter layer on the lower plate or upper plate would

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produce a functional-equivalent LCD device. Therefore, it would have been at least obvious to one ordinary skill in the art to employ a color filter layer on the lower plate since by doing so would produce a functional equivalent LCD device.

The liquid crystal cell is either positive or negative liquid crystals.

It would have been at least obvious to one ordinary skill in the art to employ a light condenser having diffraction or refraction condensing effect and comprises a plurality of several metals with periodic patterns and various widths and distances for further reflecting light in the reflective mode so as achieving advantages such as brighter display in a reflective mode.

4. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo as applied to claims 1-4, 21-23, 25-26 and 28-35 above, and further in view of Okamoto et al (US 6281952).

Okamoto discloses a transreflective LCD device (see at least Example 7) comprising a liquid crystal layer with positive liquid crystals having a refractive index of 0.065 (within Applicant's claimed range of 0.05-0.1) and a retardation of 292.5 nm ( $4.5 \text{ } \mu\text{m} \times 0.065$ , within Applicant's claimed range of 270-460 nm in the transparent/transmissive area and 200-330 nm in the reflective area). Okamoto discloses the transreflective LCD device yielding advantages such as excellent visibility, high-resolution display while using reflected light and transmitted light. Therefore, it would have been obvious to one ordinary skill in the art to employ a transreflective LCD device having particular (above) parameters such as particular refractive index, retardation value for achieving advantages such as excellent visibility, high-resolution display while using reflected light and transmitted light.

***Allowable Subject Matter***

5. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not anticipate nor render obvious to one ordinary skilled in the art a liquid crystal display device comprising a combination of various elements as claimed, more specifically, the ratio of the average equivalent focus of the condenser to the thickness of the spacing layer is between 0.65 and 1.4.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

***Contact Information***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan Ton whose telephone number is (571) 272-2303.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 23, 2005



**TOANTON**  
**PRIMARY EXAMINER**